15 Watt SIP Open AC-DC Converters

Features:

- 15W Small Compact SIP style AC-DC converter
- Wide AC & DC Input 85V to 305VAC, 100-430VDC
- Temperature Range -40°C to +85°C
- EMC compliant with external components
- Output Range: 3.3V - 24VDC
- Low Standby Power 0.1W
- Fully Isolated Pri - Sec >4000Vrms
- Safety: Class II
- Materials: UL94-V0
- IEC/EN61558, IEC/EN60335
- 1 Year Warranty

E472059

Description

VTX-215-015-1## is a compact SIP style AC-DC power converter. It They feature wide input range accepting either AC or DC voltage, high efficiency, low power consumption and CLASS II reinforced insulation. All models are particularly suitable for industrial control, electric power, instrumentation and smart home applications which don't have high requirement for dimension. A varietyof EMC external circuits meet the needs of multiple industries we recommend using the application circuit show in this Datasheet or contact our Technical team for further support.

Selection Guide

Part Number	Power Rating Watts	Output Voltage (VDC)	Output Current (mA)	Capacitive Load (uF)	Ambient Temp. (°C)	Efficiency Typical	Input Range
VTX-215-015-103	9.9	3.3	3000	5000	85°C	>75%	85 - 305VAC (100 - 430VDC)
VTX-215-015-105	14	5	2800	5000			
VTX-215-015-109	15	9	1670	4000			
VTX-215-015-112	15	12	1250	2000			
VTX-215-015-115	15	15	1000	1000			
VTX-215-015-124	15	24	625	680			

Note: Other output voltages are available upon request.

Please contact Vigortronix for any enquiries. Products can be altered to suit custom requirements.

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Input Specification					
Item	Conditions	Min	Typical	Max	Unit
Input Voltage	AC Input	85	-	305	VAC
	DC Input	100	-	430	VDC
Input Frequency		47	-	63	Hz
Input Current	110VAC	-	-	0.30	A
	230VAC	-	-	0.30	
External Input Fuse		1 Amp Slow Blow Fuse			

Output Specification					
Item	Conditions	Min	Typical	Max	Unit
Output Voltage	10% - 100% Load	-	+/-1	+/-3	%
Line Regulation	Full Load 3.3VDC	-	+/-2.5	-	
	Other Voltage		+/-1.5		
Load Regulation	10% - 100% Load	-	+/-3	-	
Ripple / Noise	20MHz Bandwidth (Peak to Peak Value)	-	80	100	mV
Stand by Power	230VAC	-	0.10	0.25	W
Temp. Coefficient		-	+/-0.15	-	%/^{O}C
Short Circuit Protection		Continuous, Self-recovery			
Over Current Protection		>110 Load, Self-recovery			
Minimum Load		0	-	-	%
Hold-up Time	115VAC Input	-	8	-	ms
	230VAC Input	-	40	-	

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General Specification						
Item	Conditions		Min	Typical	Max	Unit
Dielectric Strength	Input to Output (1Min, 5mA)		4000	-	-	VAC
Insulation Resistance	Input to Output (500VDC)		1000	-	-	MOhm
Power Derating	+55°C - +85°C	3.3V/5V/9V/24V	1.67	-	-	%/°C
	+55°C - +85°C	12V/15V	1.72	-	-	
	85VAC - 100VAC		1.33	-	-	%/VAC
	277VAC - 305VAC		0.72	-	-	
Operating Temperture			-40	-	+85	°C
Storage Temperture			-40	-	+85	
Storage Humidity			-	-	+95	%RH
Safety Class			CLASS II			
MTBF	25°C (MIL-HDBK-217F)		>1,000KHrs			
Soldering Profile	Wave-soldering		260 ± 5°C; time: 5 - 10s			
	Manual-welding		360 ± 8°C; time: 3 - 5s			
Safety Approvals			IEC/EN/UL62368-1IEC/EN61558-1, IEC/EN60335-1			
Cooling Method			Free air convection			
Dimensions			32.00 x 20.00 x 14.50mm			
Weight			10.2g (Typ.)			

EMC Specification		
Emissions	CE /RE	CISPR32 / EN55032 CLASS A/B
Immunity	ESD	IEC/EN 61000-4-3 10V/m
	RS	IEC/EN 61000-4-4
	EFT	IEC/EN 61000-4-5
	SURGE	IEC/EN 61000-4-6 10V/r.m.s.
	CS	IEC/EN 61000-4-2 Contact ±6KV

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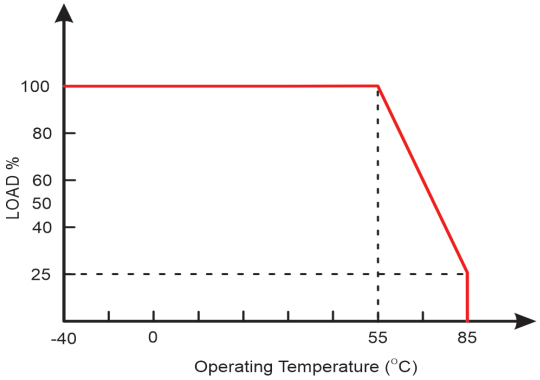
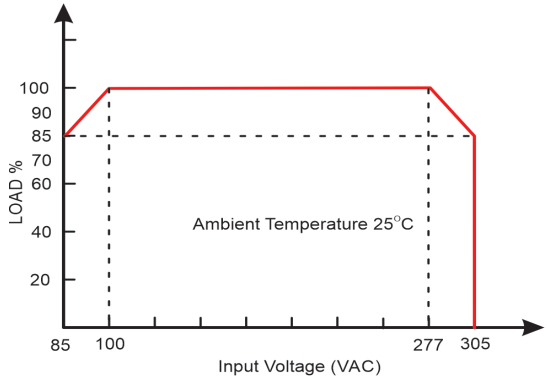
Derating Graphs

Temperature Derating Graph

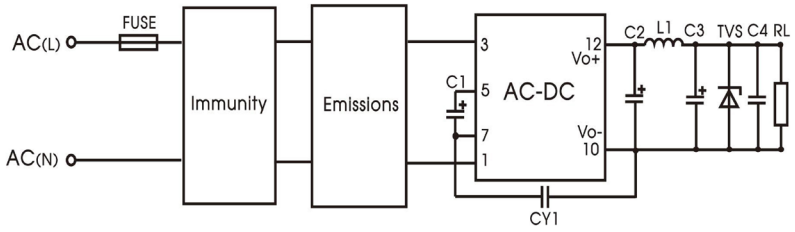


Input Voltage Derating Graph

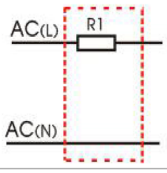


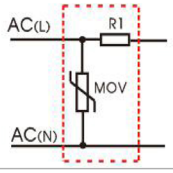
Application Schematic for EMC

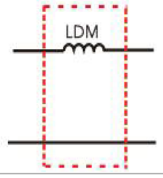
Typical Application

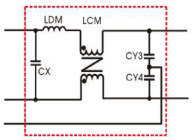


Immunity design circuits for reference		Emissions design circuits for reference	
CLASS III	CLASS IV	CLASS A	CLASS B









Part Number	C1	C2 (Solid State)	L1	C3	C4	CY1	TVS	Fuse	MOV
VTX-215-015-103	33uF/ 450V	1000uF/16V	2.0uH 6.5A Max 15m Ω	470uF/ 25V	0.1uF/ 50V	2.2nF/ 400VAC	TVS Transistor to protect the downstream circuit incase of abnormalities. Recommend 1.2 times the output voltage.	1Amp/ 300V Slow Blow	14D561
VTX-215-015-105									
VTX-215-015-109		470uF/25V	2.0uH 6.5A Max 15m Ω	220uF/ 25V		1.0nF/ 400VAC			
VTX-215-015-112									
VTX-215-015-115		470uF/ 35V	3.3uH 5A Max 25m Ω	150uF/ 35V					
VTX-215-015-124									
Note: For additional filtering requirements, contact technical support									

1. C1 is used as filter capacitor with AC input (must be connected externally) and as EMC filter capacitor with DC input (must be connected), and it is recommended to use the capacitor with ripple current >400mA@100KHz.
2. We recommend using an electrolytic capacitor with high frequency and low ESR (ESR of C3 at low temperature of -40°C≤1.1Ω) rating for C3 (refer to manufacture's datasheet), electrolytic capacitor can be used for C2 when applied in normal and high temperature environments. Combined with C2, L1, theyform a pi-type filter circuit. Choose a capacitor voltage rating with at least 20% margin, in other words not exceeding 80%. C4 is a ceramic capacitor, used forfiltering high frequency noise.
3. A suppressor diode (TVS) is recommended to protect the application in case of converter failure and specification should be 1.2 times of the output voltage.

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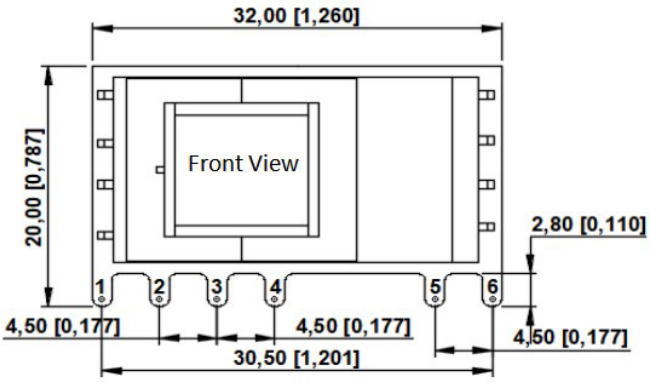
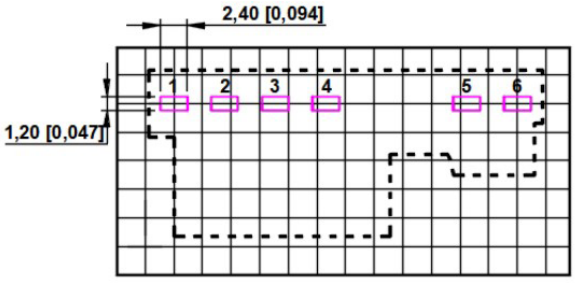
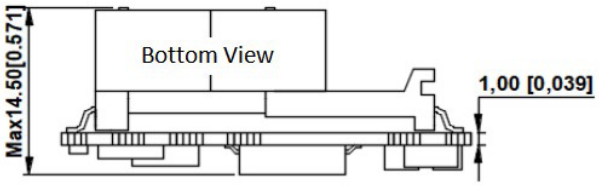
Dimensions





Grid size□2.54 x 2.54 mm



PIN Number	Function
1	AC (L)
2	AC (N)
3	+V(CAP)
4	-V(CAP)
5	-V0
6	+Vo

Dimensions: 32 x 20 x14.5mm
Weight: 10.2g Typically

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